Quality is more than a word

espec

Compact Ultra Low Temperature Chamber

MC-711・811

CAT.NO.E94140-U1201

Capable of ultra low temperatures as low as −85℃ with our unique instrumentation for program or constant operation.

The Compact Ultra Low Temperature Chamber embodies the high performance, reliability, and durability of a full-size chamber.
The line-up is comprised of a total of four models.
Select either the P-instrumentation for programming temperature cycling or the T-instrumentation for constant operation.
Also choose from two very wide temperature ranges that use environmentally-friendly HFC refrigerants.
Select the best model for your specific application and test objectives.

MC-711T

MC-811P

Characteristics

Programming operation type

Constant operation type

Temperature indicator-controller

Model		P-instrumentation (SCP-220)	T-instrumentation (ES-102)
Operating mode		Program Constant operation	Constant operation
Display		Color TFT LCD display	7-segment LED display
Setting		Analog touch panel method	Mechanical key input
Program capacity		RAM pattern: 20 program patterns (99 steps per pattern) ROM pattern: 10 program patterns	———
Setting and indication range	Temp.	−85℃ to +110℃ (MC-711), −95 to +190℃ (MC-811)	
	Time *	0 to 999hrs. 59min.	0 to 99hrs. 59min., 0 to 999hrs.
Setting and indication resolution	Temp.	0.1°C	
	Time *	1 min.	
Input		Thermocouple type T (Copper/ Copper-Nickel)	
Control		PID control	
Interface		RS-485 GPIB (option) RS-232C (option)	
Auxiliary functions		Input burn-out detection Upper and lower temp. limit alarm Self-diagnostic Alarm indication Power cut protection Refrigerator capacity automatic control Trend graph display (SCP-220) Help (SCP-220)	

* For T-instrumentation, applies to remote program via the interface.

Four models available

The MC-series comes in two temperature ranges of −75 to +100℃／−85 to +180℃, and two types of instrumentation for constant or program operation. A wide temperature range supports tests from temperature characteristic tests to low temperature preservation tests.

P- and T-instrumentation to meet your test objectives

P-instrumentation with 6.5-inch TFT color LCD enable easy test setting simply by following the displayed instructions. It offers 10 built-in standard programs, and can store up to 20 program patterns (99 steps per pattern), thus capable of diverse program tests. A wide variety of functions such as trend graph display of operation history, timer, and help support are provided for improved operational ease. T-instrumentation with large 7-segment LED offers constant operation.

Accurate PID temperature control

Just by setting the test temperature, PID control automatically controls temperature, with high accuracy.

Characteristics

Paperless recorder (optional)

The paperless recorder makes it easy record the temperatures of different components, such as the chamber temperature, on a memory card (Compact Flash).

Complete safety measures

Enough precautions are taken to ensure the safety of operators, specimens and the chamber, with various safety devices. In case they activate, power is shut down to halt chamber operation and details of alarm are displayed on the screen.

Remote control from your PC

Please contact us for details on using a PC to monitor and remotely control the equipment.

Test area

Paperless recorder (optional) *Sample photo

SPECIFICATIONS

Model		MC-711	MC-811
System		Balanced Temperature Control system (BTC system)	
Performance *1	Temp. range	−75 to +100℃ (−103 to +212℉)	−85 to +180℃ (−121 to +356℉)
	Temp. fluctuation	±0.5℃ (±0.9℉)	±0.5℃ (±0.9℉): at −85 to +100℃ (−121 to +212℉) ±1.0℃ (±1.8℉): at +100.1 to +180℃ (+212.2 to +356℉)
	Temp. gradient / Temp. variation in space	4.0℃ (±7.2℉)	4.0℃ (7.2℉): at −85 to +100℃ (−121 to +212℉) 8.0℃ (14.5℉): at +100.1 to +180℃ (+212.2 to +356℉)
	Temp. rate of change	Heat up rate: 7.0℃ /min. (12.6℉/min.) Pull down rate: 1.7℃ /min. (3.1℉/min.)	Heat up rate: 5.5℃ /min. (9.9℉/min.) Pull down rate: 2.2℃ /min. (3.4℉/min.)
	Temp. extreme achievement time	Heat up time: +20→+100℃ (+68→+212℉) Approx. 20 min. Pull down time: +20→−70℃ (+68→−94℉) Approx. 60 min.	Heat up time: +20→+180℃ (+68→+356℉) Approx. 30 min. Pull down time: +20→−80℃ (+68→−112℉) Approx. 70 min.
Heater		Nichrome-strip wire heater 1kW	
Cooler		Plate-fin cooler	
Refrigeration system		Mechanical cascade refrigeration system (air-cooled condenser)	
Refrigerator		Hermetically sealed compressor (R404A/ R508A)	
Refrigerator capacity		0.65kW + 0.4kW	0.8kW + 0.65kW
Expansion mechanism		Capillary tube system	
Fittings		Viewing window (φ120mm with frost prevention heater), Cable port (φ50mm×1), Integrating hour meter, Power cable, Drain tube	
Capacity		64L (2.2 ft^3)	
Inside dimensions		W400×H400×D400 mm (W15.7×H15.7×D15.7 in.)	
Outside dimensions *2		W900×H1200×D610 mm (W35.4×H47.2×D24.0 in.)	
Weight		155kg (342 lbs)	
Utility requirements	200V AC 3φ 3W 50/60Hz	12A	14A
	220V AC 3φ 3W 60Hz	12A	14A
	380V AC 3φ 4W 50Hz	8.3A	9.2A
Allowable ambient conditions		0 to +40℃ (+32 to +104℉)	

*1 The performance values are based on IEC60068-3-5;2001, JTM K07;2007 for ambient temperature +23℃, related humidity 65%rh, rated voltage, and no specimen.
*2 Excluding protrusions.

ACCESSORIES

- Shelf (stainless) 2
- Shelf brackets (stainless) ..... 2 sets
- Cable port rubber plug (φ50mm) 1
- Chamber lamp 1
- Glass tube fuse ..... 2 (200, 220 VAC), 1 (380 VAC)
- Thermal fuse 1
- Plug type fuse (for 380 VAC) 1
- User's manual 1

SAFETY DEVICES

- Leakage breaker for power supply (for 200/220V AC only)
- Circuit breaker (for 380V AC only)
- Temperature switch for air circulator
- Electrical compartment door switch
- Control circuit overload & short circuit protective fuse
- Reverse prevention relay
- Refrigerator overload relay
- SSR overload & short circuit protecting circuit breaker
- Thermal fuse
- Specimen power supply control terminal (with power cable plug)
- Temperature switch for compressor
- Upper and lower temperature limit alarms (built inside temperature controller)
- Burn-out circuit (built inside temperature controller)
- Watchdog timer (built inside temperature controller)
- Refrigerator automatic delay circuit (built inside temperature controller)
- Overheat protector (independent type)

OPTIONS

Paperless recorder

Records temperature of each section such as the temperature inside the chamber.
Data saving cycle: 5 sec.
External recording media:
CF memory card (256MB)
USB port
Languages support: ENG, JPN
Temperature range: −100 to +100℃
−100 to +200℃
Number of inputs (Initial setting):
Temperature 1
(5 more channels can be turned ON)

Temperature recorder

- RJ03 1 pen −100 to +100℃
- RJ04 1 pen −100 to +200℃
- RJ23 6 dots −100 to +100℃
- RJ25 6 dots −100 to +200℃

Recorder wiring

Preparation of a power cable, temperature sensor, and conductor grounding wire for additional installation in the future.

Thermocouple

Attached to specimen to measure specimen temperature.
Thermocouple type T (Copper/Copper-Nickel)
- 2 m
- 4 m
- 6 m

Emergency stop pushbutton

Stops the chamber immediately.

External alarm terminal

If the safety device of the chamber is activated, the external alarm terminal will notify it to a remote point.

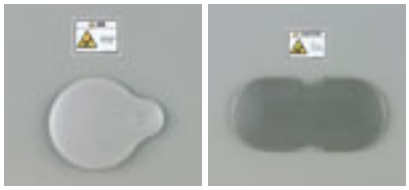
Additional cable port

Provided in addition / replacement of the standard cable port.
- ϕ25 mm
- ϕ50 mm
- ϕ100 mm
- Flat cable port (W100×H25 mm)

* Each cable port is equipped with a silicone sponge rubber plug.
* Basic specification of the chamber may not be met when equipped with a cable port.

Cable port rubber plug

Prevents air leakage from the cable port.



25mm diameter type flat type

Shelf / Shelf bracket

Equivalent to standard accessory.

Caster

Installed for mobility.
4 casters, with leveling feet

Interface

- GPIB
- RS-232C

* Select one, instead of standard RS-485

Communication cables

- RS-485 5m/ 10m/ 30m
- GPIB 2m/ 4m
- RS-232C 1.5m/ 3m/ 6m

Power cable

Select one instead of the standard 3m cable.
- 5 m
- 10 m

DANGER

●Do not use specimens which are explosive or inflammable, or which contain such substances. To do so could be hazardous, as this may lead to fire or explosion.

●Do not place corrosive materials in the chamber. If corrosive substances or liquid is used, the life of the unit may be significantly shortened specifically because of the corrosion of stainless steel, resin and silicone materials.

●Do not place life forms or substances that exceed allowable heat generation.

CAUTION

Be sure to read the user's manual before operation.

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